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A Descriptive Analysis of PTSD Chronicity in Vietnam Veterans

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This study examined the chronicity of PTSD in 530 male and female Vietnam veterans who were drawn from 2 large, ethnically diverse samples. Delayed onset was common, as was a failure to fully remit: 78% of the 239 veterans with full or partial lifetime PTSD were symptomatic in the 3 months prior to assessment. Cluster analysis identified 4 subtypes of posttraumatic response, with women most likely to be in a delayed onset cluster, and minority men most likely to be in a severe chronic cluster. The extent of chronicity observed in this sample underscores the need for treatments that address the persistence of posttraumatic symptoms.

KEY WORDS: posttraumatic stress disorder; military veterans; longitudinal course; gender differences; ethnic differences.

The course of posttraumatic stress disorder (PTSD) can take on a variety of forms. *DSM-IV* (American Psychiatric Association, 1994) recognizes two temporal factors for classifying subtypes of PTSD—onset (acute, delayed) and duration (nonchronic, chronic). Delayed onset is defined as occurring 6 months or more following a traumatic event. Estimates of prevalence for delayed onset vary considerably (see Blank, 1993), due, no doubt, to varying definitions, but also due to sample differences in posttraumatic factors that affect risk. One such factor is type of trauma. Among men studied in the National Comorbidity Survey (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995), 22% of combat veterans met *DSM-IV* criteria for delayed onset, a 4-fold greater likelihood in comparison with men who experienced other traumas (Priegerson, Maciejewski, & Rosenheck, 2001).

DSM-IV defines *chronic* PTSD as that lasting longer than 3 months (American Psychiatric Association, 1994). The prevalence of chronic PTSD according to this definition is unknown, but likely to be very high. Using a stricter criterion (1 year), Breslau and Davis (1992) found that 52% of a sample of young adult men and women with lifetime PTSD had a chronic form. Kessler et al. (1995) examined chronicity in adult men and women by asking those with lifetime PTSD for how long after their symptom onset they continued to have symptoms a few times a week. Using this as a measure of remission, Kessler et al. found that roughly one third of cases remained chronic years after a traumatic event. Similar findings were reported by Breslau et al. (1998) in another large epidemiological study.

Prospective studies of the course of PTSD have been of relatively brief duration, typically less than 5 years in length (e.g., Freedman, Brandes, Peri, & Shalev, 1999; Mayou, Tyndel, & Bryant, 1997; McFarlane & Papay, 1992). However, duration can span an entire adult lifetime, as has been shown in samples of Holocaust survivors (Yehuda et al., 1995) and World War II (WW II) veterans (Port, Engdahl, & Frazier, 2001; Schnurr, Spiro, Vielhauer, Findler, & Hamblen, 2002). The practical realities of long-term prospective research, coupled with the fact that the diagnosis of PTSD was not formalized until 1980, have led to the use of retrospective methods for examining the

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long-term course of PTSD. Among Dutch Resistance fighters from World War II, 22% reported a chronic progressive course, 28% reported a duration of symptoms of less than 5 years, and the remaining reported a pattern of remission and exacerbation (Op den Velde et al., 1993). There were both acute and delayed onsets within each of these categories. Among WW II POWs (Port et al., 2001), 16% reported no difficulties, 29% reported a symptom duration of less than 5 years, and 18% reported chronic symptoms. The remainder reported one of several patterns of change. Another study of WW II POWs (Zeiss & Dickman, 1989) found similar results: 14% reported no difficulties, 24% reported being continuously troubled since repatriation, and 62% reported being intermittently troubled.

This study was designed to provide further information about the chronicity of PTSD through secondary analyses of data from two large studies of community samples of Vietnam veterans, the National Vietnam Veterans Readjustment Study (NVVRS; Kulka et al., 1990), and the Hawaii Vietnam Veterans Project (HVVP; Friedman et al., 1997). Although the NVVRS and HVVP employed retrospective methods and included only a few questions about temporal course, the use of these datasets allowed us to build upon prior investigations by examining subtypes of chronicity (as in Port et al., 2001) in both men and women and in a variety of ethnic groups. Our overall objective was descriptive: to characterize aspects of chronicity and empirically define subtypes of PTSD chronicity. Our secondary objective was to explore gender and ethnic group differences in these subtypes given the differences in PTSD prevalence due to race and gender (e.g., Breslau et al., 1998; Kessler et al., 1995).

Method

Data Sources

National Vietnam Veterans Readjustment Study

Data for the NVVRS (Kulka et al., 1990) were collected between 1987 and 1988 to fulfill a Congressional mandate. This epidemiological study drew a national probability sample of theater veterans, era veterans, and civilian controls. Blacks and Hispanics were oversampled relative to Whites, as were women, who were not stratified by ethnic group. (See Kulka et al., or Schlenger et al., 1992, for further details about the sampling procedures.) The study used a two-stage design in which a lay interview was conducted with a large sample and then a clinical interview was conducted with a smaller subsample. Participants in the first stage were 1,632 male and female Vietnam theater veterans, 716 era veterans who served during the Vietnam era but not in Vietnam, and 668 civilians; *n*s reflect response rates of 83, 76, and 70%, respectively. Participants in the second stage were 344 Vietnam theater veterans and 96 era veterans: all probable cases of PTSD plus a sample of probable noncases who were oversampled for high combat exposure. The *n*s reflect response rates of 85% among theater veterans and 83% among era veterans.

Hawaii Vietnam Veterans Project

The Matsunaga Vietnam Veterans Project (Friedman et al., 1997), like the NVVRS, was congressionally mandated. Data were collected between 1994 and 1996, using a two-stage design and methods very similar to those employed in the NVVRS. The measures in the HVVP were designed for maximum comparability with the NVVRS, although some were modified to enhance cultural sensitivity. The study had two arms: the American Indian Vietnam Veterans Project, which included male Vietnam theater veterans from two tribes, Northern Plains and Southwest (see Beals et al., 2002, for a description of methods and findings) and the Hawaii Vietnam Veterans Project, which included data from Native Hawaiian and American of Japanese Ancestry (AJA) male Vietnam veterans.

The HVVP was restricted to male Native Hawaiians and AJAs who had served in the Vietnam Theater and who resided in the State of Hawaii at the time of the study. As in the NVVRS, the primary sources for the identification of veterans and the applicable sample were the military records maintained by the National Personnel Record Center and the Defense Manpower Data Center. Selected veterans were screened to eliminate those who were not eligible due either to nonresidence in Hawaii or to military service outside of the Vietnam Theater. Of 3,681 veterans identified, 700 met the study admission criteria (for ethnic background, Vietnam theater service, and residence): 354 Native Hawaiians and 346 AJAs. Of these veterans, 302 Native Hawaiians (85%) and 302 AJAs (87%) completed the lay interview. For the clinical interview stage of the HVVP, 131 Native Hawaiian and 131 AJA veterans were selected, including all likely PTSD cases, a sample of non-PTSD cases, and a sufficient number of uncertain PTSD cases to identify false-negatives. One hundred Native Hawaiian (69%) and 102 AJA (79%) veterans completed the interview.

Participants

Participants were 530 Vietnam theater veterans drawn from the 546 theater veterans in the clinical interview

samples of the two studies. Sixteen veterans with lifetime partial or full PTSD were excluded because they had missing symptom duration data, which we defined as primary among the chronicity measures. In the NVVRS, there were 80 women and 249 men (99 White/other, 70 Black, and 80 Hispanic). All but three women were White (96.3%), making this group comparable to the White/other male group in ethnic composition (93.9% White). In the HVVP, there were 99 Native Hawaiians and 102 AJA.

At the time of interview, 72.6% ($n = 385$) of the veterans were married and 83.0% ($n = 440$) were currently working. Average age at interview was 45.54 years ($SD = 7.49$, range 32–70 years). The clinical interview took place an average of 22.05 years after entry into Vietnam ($SD = 4.20$, range = 14–33 years). Because the HVVP interviews were conducted 7–8 years after the NVVRS, it is not surprising that age at interview was higher in the HVVP ($M = 50.31$, $SD = 6.53$) than in the NVVRS ($M = 42.62$, $SD = 6.47$), $t(528) = 13.22$, $p < .001$. Likewise, time since entry into Vietnam was significantly longer in the HVVP ($M = 26.86$, $SD = 1.76$) than in the NVVRS ($M = 19.11$, $SD = 1.92$), $t(523) = 46.31$, $p < .001$. However, the datasets were pooled because exploratory analyses indicated that these differences did not bias the results reported below.[5] Statistical adjustment for age at interview and time since Vietnam was not used because the variables were too highly correlated with group membership.

Measures

PTSD Diagnosis

PTSD was assessed using the Structured Clinical Interview for DSM-III-R (SCID; Spitzer, Williams, Gibbon, & First, 1989). Symptoms were coded as absent, subthreshold, or threshold for both current and lifetime. To receive a diagnosis of full current or lifetime PTSD, individuals had to have at least one reexperiencing ("B") symptom, at least three avoidance/numbing ("C") symptoms, and at least two hyperarousal ("D") symptoms coded as threshold in the relevant time frame. Current and lifetime partial PTSD prevalence were defined as either meeting the "B" criterion (at least one "B" symptom) and the "D" criterion (at least 2 "D" symptoms), or meeting the "B" criterion and having at least one "C" and one "D" symptom in the relevant time frame (Schnurr, Friedman, & Rosenberg, 1993). Note that PTSD diagnoses were based only on the SCID, and not the multimethod procedures used in the NVVRS and HVVP, because the SCID was the only source of the temporal information described below.

Ages

Age at interview was calculated from the date of the interview and date of birth. The year of the SCID interview was not available for the NVVRS dataset and was set to 1987 because the majority of NVVRS interviews were conducted in 1987. Age at entry into Vietnam was available for the NVVRS, and for HVVP, age at entry was calculated from the difference in years between date of birth and the month and year of first entry into Vietnam. Time since Vietnam entry was calculated from the difference between age at entry into Vietnam and age at SCID interview.

PTSD Chronicity

Four aspects of PTSD chronicity were derived from three questions on the SCID: "How old were you when you first had these problems"; "When did you last have any symptoms of PTSD" (in months); and "During the past 5 years, how much of the time have you been bothered by symptoms of PTSD?" (in months).

"Onset" was computed as the number of years between age at first PTSD symptoms and age at entry into Vietnam. Although some veterans had onsets before Vietnam that could be explained by prior trauma (see Results Section), 13 veterans had an onset of -1 or -2 but no indication of pre-Vietnam trauma. The 12 cases of onset = -1 were assumed to reflect rounding error in the calculation of dates and were recoded to 0; the -2 case was not recoded. "Recency," which was recorded in months, was converted to years to determine age at last PTSD symptoms; we also report findings in terms of months to provide information about recency within the year prior to interview. "Duration" was determined by calculating the difference between the age at first symptoms and age at last symptoms. Because duration could not be a negative number, cases with a duration of -1 ($n = 7$) or -2 ($n = 3$) were assumed to reflect rounding error (from the calculation of dates by year only) and were recoded to 0. "Density" was calculated as the percentage of time a veteran experienced symptoms during the prior 5 years. Density was recoded to 0 for 3 cases: one had duration = 0 and density = 100%; one had recency = 10 years but reported

[5] The cluster analysis solution for the NVVRS dataset replicated the solution for the pooled dataset. Both analyses yielded four-cluster solutions with similar cluster statistics, and the distribution of the NVVRS gender/ethnic groups among clusters was virtually the same for both cluster solutions.

1 month with symptoms during the prior 5 years; and one had missing density information but recency >5 years.

Data Analysis

Univariate analyses were performed by *t*-test, ANOVA, or chi-square test, as appropriate. Differences among gender/ethnic groups in PTSD prevalence (coded absent, partial, and full) were examined with logistic regression using a proportional odds model (Hosmer & Lemeshow, 2000). Our data met the assumption of proportional odds, which is that the effect of a predictor is the same regardless of how an outcome with K categories is dichotomized into $K - 1$ ordinal contrasts, e.g., in our case, absent versus partial/full, and absent/partial versus full. Only the intercepts for each of the $K - 1$ contrasts are allowed to vary. The odds ratio (OR) for each gender/ethnic group indicates the odds that group met criteria for a higher level (full or partial) diagnosis, relative to White/other men.

Symptom onset after entry into Vietnam was examined in veterans with lifetime full or partial PTSD by using Kaplan–Meier survival analysis. A log-rank test was used to compare the functions for gender/ethnic subgroups.

Cluster analyses were used to define subtypes among veterans with full or partial PTSD who had complete data on the four chronicity variables (onset, recency, duration, and density). Hierarchical cluster analysis, using standardized Euclidean distance, was conducted to determine the number of clusters to submit to *k*-means clustering. The dendrogram from the hierarchical cluster analysis was visually inspected to determine the appropriate number of clusters (Norusis, 1993). The *k*-means clustering algorithm is a well-known iterative method for identifying subsets of a population with similar characteristics. The number of iterations was set to 1,000 and the *k*-means analysis was repeated several times to assure the stability of the results. Both cluster analyses were conducted on standardized variables using Matlab software.

An ANOVA was used to identify the defining characteristics of clusters. Chi-square tests were used to explore the association between cluster membership and both gender and ethnicity. To maximize power for the analyses involving ethnicity, all of the male non-White groups were pooled for comparison with White/other men. Power was also a concern in the analyses involving gender, but to ensure similarity of ethnicity in these analyses, women were compared with White/other men rather than all men. The adjusted residuals (Haberman, 1973) for the individual cells were then examined to provide information about the contribution of each cell to the lack of fit of the overall model. These residuals are interpreted as z scores (see Agresti, 1990); hence, a value of ± 1.96 is significantly deviant (from expectation) at $p < .05$.

Results

Of the 530 participants, 239 had a lifetime diagnosis of PTSD, either full (30.6%; $n = 162$) or partial (14.5%; $n = 77$), 14.7% ($n = 78$) had current full PTSD, and 7.7% ($n = 41$) had current partial PTSD. Lifetime prevalence varied among gender/ethnic groups, $\chi^2(5, N = 530) = 35.14$, $p < .001$ (Table 1). Women did not differ from White/other men. Black, Hispanic, and Native Hawaiian men were more likely, and AJA men were less likely, than White/other men to receive higher level lifetime diagnoses. Current prevalence also varied among groups, $\chi^2(5, N = 530) = 46.02$, $p < .001$. Compared with

Table 1. Lifetime and Current PTSD Diagnosis in Vietnam Veterans as a Function of Gender/Ethnic Group ($N = 530$)

	White/other men ($n = 99$)	Women ($n = 80$)	Black men ($n = 70$)	Hispanic men ($n = 80$)	Native Hawaiian men ($n = 99$)	AJA men ($n = 102$)
Lifetime PTSD						
Full	25.3% (25)	20.0% (16)	40.0% (28)	46.3% (37)	38.4% (38)	17.6% (18)
Partial	16.2% (16)	15.0% (12)	18.6% (13)	11.3% (9)	17.2% (17)	9.8% (10)
Absent	58.6% (58)	65.0% (52)	41.4% (29)	42.5% (34)	44.4% (44)	72.5% (74)
Odds ratio	1.00	0.76	1.96*	2.19**	1.78*	0.56*
95% CI		0.42, 1.38	1.09, 3.52	1.24, 3.85	1.04, 3.05	0.31, 0.99
Current PTSD						
Full	15.2% (15)	7.5% (6)	24.3% (17)	30.0% (24)	12.1% (12)	3.9% (4)
Partial	10.1% (10)	7.5% (6)	4.3% (3)	12.5% (10)	11.1% (11)	1.0% (1)
Absent	74.7% (74)	85.0% (68)	71.4% (50)	57.5% (46)	76.8% (76)	95.1% (97)
Odds ratio	1.00	0.52	1.30	2.23*	0.88	0.16***
95% CI		0.24, 1.12	0.66, 2.56	1.19, 4.16	0.46, 1.68	0.06, 0.43

Note. Odds ratios and 95% confidence intervals (CIs) are associated with the ordinal logistic regression model predicting PTSD diagnosis from gender/ethnic group (with White/other men as the reference category). AJA, American of Japanese Ancestry.
*$p < .05$. **$p < .01$. ***$p < .001$.

White/other men, Hispanic men were more likely, and AJA men were less likely, to receive higher level current diagnoses. Subsequent analyses focused in greater detail on the 239 participants with lifetime full or partial PTSD.

PTSD Chronicity in Veterans With Lifetime Full or Partial PTSD

PTSD symptom onset occurred an average of 1.34 years ($SD = 3.41$) after entry into Vietnam. Eighteen veterans (7.6%) had their first PTSD symptoms before going to Vietnam. Of these, one had prior warzone exposure (WWII and/or Korea), nine had premilitary trauma (from SCID criterion "A" for PTSD or from the traumatic events section of the lay interview), seven had both previous war exposure and premilitary trauma, and one (with onset = −2) had no indication of pre-Vietnam trauma. Among veterans who had symptoms during or after Vietnam, 69 (31.4%) had their first symptoms the same year they went to Vietnam and 67 (30.5%) had an onset of 1 year after entry into Vietnam. The remaining veterans had onsets of between 2 and 5 years (31.8%, $n = 70$), and 6–22 years (6.4%, $n = 14$) after entry into Vietnam.

Visual inspection of the data suggested that there might be interesting differences in onset among gender and ethnic groups. Survival analysis was used to formally test this possibility. Veterans with onset prior to Vietnam were excluded from the analysis because survival analysis cannot accommodate negative onsets. Figure 1 presents the Kaplan–Meier survival curves for the six groups. The median onset—the time by which 50% of each group first had PTSD symptoms—was 1 year for all groups. However, a substantial number of onsets occurred later, as is evident from the figure. Women appeared to have the most late onsets, and White/other men the fewest, but the test of differences among groups failed to attain a conventional level of significance, $\chi^2(5, N = 220) = 9.69$, $p = .08$.

The average number of years since last symptoms was 1.93 ($SD = 5.33$, range = 0–26.83). About half of the veterans (54.8%, $n = 131$) had PTSD symptoms during the month prior to interview. Only 53 veterans (22.2%) had reported no symptoms during the 3 months prior to interview.

Symptom duration ranged from 0 to 44 years ($M = 18.54$, $SD = 7.02$). Only 7.5% ($n = 18$) veterans had a duration of 5 or fewer years, and fully 40.2% ($n = 96$) had a duration of 20 or more years.

On average, veterans reported experiencing symptoms 63.4% of the time ($SD = 43.7$) during the past 5 years. The distribution was bimodal, however. Over half of the sample (54.9%, $n = 123$) had symptoms 100% of the time, and 17.4% ($n = 39$) said they had no months with symptoms during the last 5 years. Even in veterans who did not have sufficient symptoms to meet partial criteria for current PTSD, 43.0% reported density as being over 80%.

Cluster Analysis

Cluster analysis was performed for the 223 veterans with lifetime full or partial PTSD who had complete data, 93.3% of the total number of 239. Four clusters best described the participants. We labeled these clusters (1) remitted; (2) chronic, late onset; (3) chronic, intermittent; and (4) chronic, unremitted. Summary statistics for the clusters are presented in Table 2. Although the analyses were performed using standardized variables, the cluster statistics are presented in unstandardized format to facilitate interpretation.

In the remitted cluster, symptoms last occurred an average of 11 years prior to interview, longer than in the other three clusters. Duration was shorter and density was lower, in contrast with the other clusters. In the late onset cluster, symptoms first occurred on average over 6 years after Vietnam, significantly later than in the other clusters. The average duration was also significantly shorter than in the intermittent and unremitted clusters (which is not surprising given that symptom onset was later). These cases were chronic, however. Density and recency indicate that the majority of cases were symptomatic during the prior 5 years. The intermittent and unremitted clusters, with the longest mean symptom duration, differed from each other in terms of density. The intermittent cluster had significantly lower density ($M = 24.8\%$) than the unremitted cluster ($M = 99.7\%$).

Table 3 presents information about cluster membership among the gender and ethnic subgroups. Chi-square tests were performed to examine the relationship between cluster membership and both gender (White/other men vs. women) and ethnicity (White/other men vs. non-White men). Cluster membership was significantly associated with gender, $\chi^2(3, N = 62) = 8.99$, $p < .05$. There were more women than expected in the late onset cluster: 29.6% versus 2.9% of the men (adjusted residual = 3.0, $p < .01$), which is consistent with the survival analysis findings.

Among men, cluster membership was associated with ethnicity, $\chi^2(3, N = 196) = 8.48$, $p < .05$. There were more non-Whites than expected in the unremitted cluster: 55.9% versus 34.3% in White/others (adjusted residual = 2.3, $p < .05$). There were more White/other men than expected in the intermittent cluster: 37.1% versus 19.9% in non-Whites (adjusted residual = 2.2, $p < .05$).

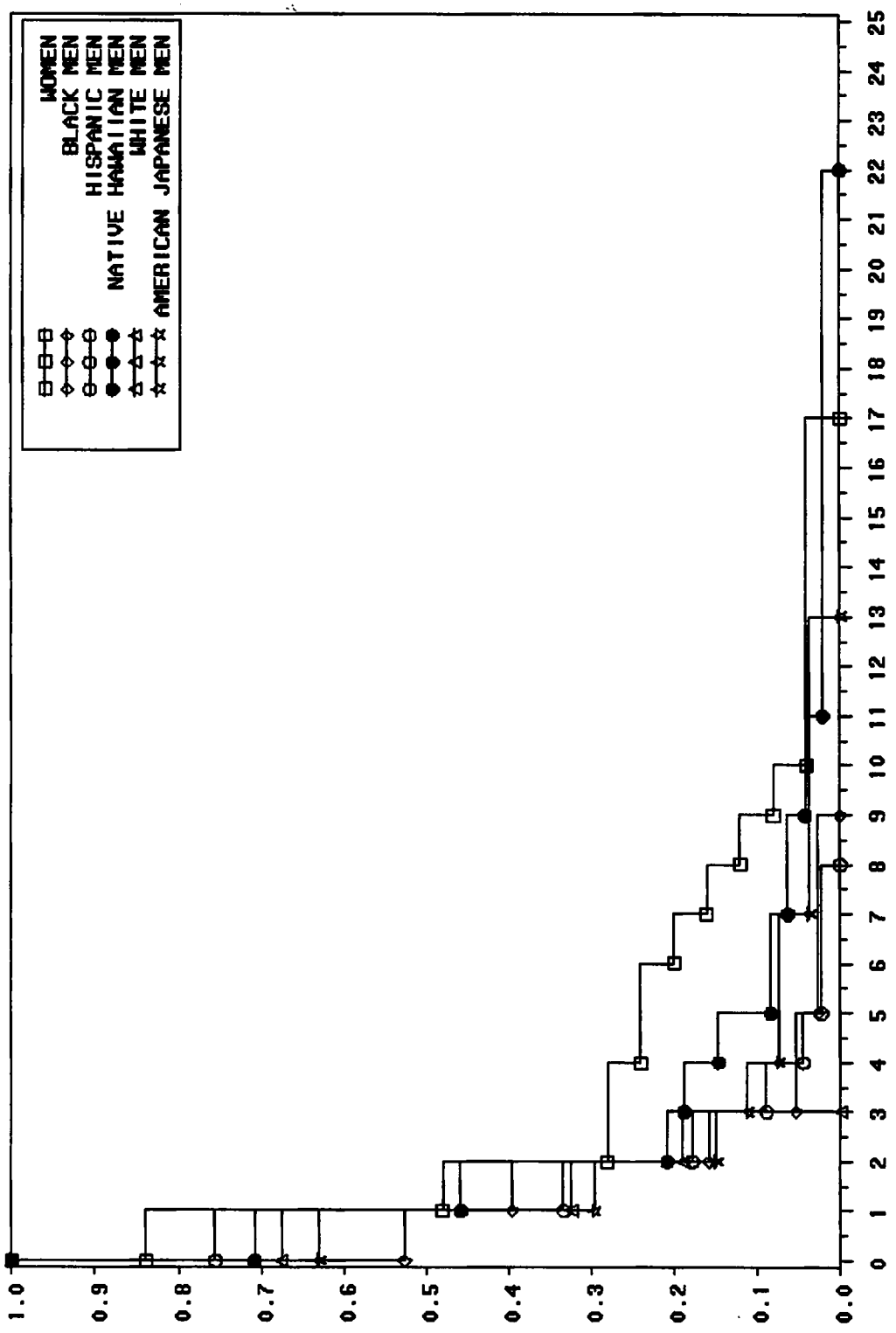

Fig. 1. Kaplan–Meier survival curve for predicting onset of PTSD symptoms in Vietnam veterans as a function of gender and ethnic group. All veterans met criteria for lifetime full or partial PTSD ($N = 220$). The figure does not include data from 18 veterans with symptom onset prior to Vietnam and 1 veteran with missing onset data (no age at entry into Vietnam).

Table 2. PTSD Cluster Summary Statistics for Vietnam Veterans With Lifetime Full or Partial PTSD ($N = 223$)

Cluster	%	*n*	*M* (*SD*) Onset	Duration	Recency	Density
Remitted	17.9%	40	1.65_a (4.98)	8.70_a (6.84)	11.00_a (8.44)	$3.1\%_a$ (8.38)
Chronic, late onset	9.4%	21	6.38_b (4.15)	13.33_b (4.13)	0.16_b (0.44)	$85.9\%_b$ (24.19)
Chronic, intermittent	23.8%	53	0.36_a (3.01)	20.79_c (4.62)	0.23_b (0.71)	$24.8\%_c$ (24.21)
Chronic, unremitted	48.9%	109	0.80_a (1.72)	21.98_c (4.45)	0.04_b (0.12)	$99.7\%_d$ (2.01)

Note. Table entries represent *M* (*SD*) for each cluster. Column means not sharing a subscript differ at $p < .005$.

Discussion

There are several key findings in our study: the extent of chronicity, the extent of delayed onset, and the higher-than-expected occurrence of delayed onset in women. We discuss each in turn.

Among Vietnam veterans who had ever developed full or partial PTSD, only one in five reported no symptoms in the prior 3 months when assessed 20–25 years after their Vietnam service. Over half said they had symptoms every month in the 5 years prior to being interviewed, which is noteworthy because only slightly more than 20% currently had full or partial PTSD. Failing to meet current diagnostic criteria was not equivalent to being symptom-free. The extent of chronicity observed in this sample underscores the need for treatments that address the persistence of posttraumatic symptoms.

Findings from general population studies suggest that about one third of PTSD cases fail to remit years after their symptoms began (Breslau et al., 1998; Kessler et al., 1995). There are several possible reasons for the much higher estimate in our study (78%). One is type of interviewer: trained layperson (Breslau et al., 1998; Kessler et al., 1995) versus clinician (our study). Another reason is our measure of symptom presence. Whereas we defined remission based on the SCID question that specifies no minimum frequency, these other studies used measures that asked about symptoms occurring "at least a few times a week." The high density reported by our sample is inconsistent with question wording as the sole explanation, however. Even if we had used a very low threshold for defining remission—one or more symptom-free months in the prior 5 years—only 45% of our sample would be categorized as remitted. Trauma type is another possible reason for the high estimates of unremitted PTSD in our sample. A recent reanalysis of Kessler et al.'s data found that among men, the likelihood of unresolved symptoms was higher for combat than for other traumas (Priegerson et al., 2001). Because all of our participants experienced combat, their symptom duration might be longer than in mixed trauma samples.

Delayed onset was relatively common. Almost 40% of the sample reported that symptoms first occurred 2 or more years after entering Vietnam. This figure is higher than the 22% reported for male combat veterans by Priegerson et al. (2001), who used 6 months as a criterion for determining delay, and less than the 70% reported for male Dutch resistance fighters by Op den Velde et al. (1993), who used 5 years as a criterion. Although the present study was not designed to provide a conclusive estimate of the prevalence of delayed onset, or to explain why it occurs, our findings help to indicate that delayed onset is not a rare phenomenon, as has been proposed by others (e.g., Bremner, Southwick, Dornell, & Charney 1996).

Cluster analysis identified four subtypes of posttraumatic response. The largest cluster, containing almost 50% of the sample, was chronic PTSD characterized most notably by near-100% symptom density. Non-White men were overrepresented in this cluster, which is consistent with the original analyses reported for the NVVRS (Kulka et al., 1990) and HVVP (Friedman et al., 1997).

The smallest cluster, with 9.4% of the sample, had very high density and late onset (and, consequently, shorter duration). Women were overrepresented in this cluster. Survival analysis also yielded findings consistent with the

Table 3. PTSD Cluster Membership for Vietnam Veterans With Lifetime Full or Partial PTSD ($N = 223$)

	White/other men ($n = 35$)	Women ($n = 27$)	Black men ($n = 36$)	Hispanic men ($n = 43$)	Native Hawaiian men ($n = 54$)	AJA men ($n = 28$)
Remitted	25.7% (9)	14.8% (4)	22.2% (8)	9.3% (4)	16.7% (9)	21.4% (6)
Chronic, late onset	2.9% (1)	29.6% (8)	5.6% (2)	14.0% (6)	5.6% (3)	3.6% (1)
Chronic, intermittent	37.1% (13)	29.6% (8)	25.0% (9)	25.6% (11)	7.4% (4)	28.6% (8)
Chronic, unremitted	34.3% (12)	25.9% (7)	47.2% (17)	51.2% (22)	70.4% (38)	46.4% (13)

idea that women in the NVVRS had relatively late onsets. We are unaware of other data showing that women are at greater risk than men of late onset, and caution readers with respect to generalizing these findings because the NVVRS is distinctive from other studies with respect to gender effects on PTSD. Kulka et al. (1990) reported similar lifetime prevalence in men and women. In contrast, most studies have found that women are more likely than men to develop PTSD (Breslau et al., 1998; Kessler et al., 1995), and to develop chronic PTSD (Breslau & Davis, 1992). Our findings, therefore, beg replication to determine their generalizability to women in general. We encourage further investigation to identify factors associated with delayed onset. As indicated above, type of trauma is one factor (Priegerson et al., 2001), but it is likely that others—particularly events occurring after a traumatic event—influence onset. A recent study of former POWs reported that those with very late onset had the lowest education, shortest duration of imprisonment, and poorest self-reported health compared with other POWs (Port et al., 2001).

We reported prevalence findings for the NVVRS and HVVP to describe our sample. These estimates differ somewhat from the estimates presented by Kulka et al. (1990) and Friedman et al. (1997), who based their findings on a multivariate prediction model in the large lay sample of each study and separately examined partial and full PTSD. In contrast, our estimates are based on the SCID in the clinical subsamples and we used ordinal regression to examine both partial and full PTSD simultaneously. Our failure to find a difference in current PTSD prevalence between men and women, and between Blacks and Whites, as previously reported by Kulka et al. (1990) may be due to differences in diagnostic and analytic methods. Also, the smaller number of participants in the clinical interview sample would have resulted in lower power in our study relative to Kulka et al.'s. It was not possible to use the larger samples or the multivariate models, however, because the necessary chronicity information applied to the SCID, which was collected only in the clinical portion of each study.

One caveat regarding our findings is that the data are based on retrospective self-report. Although other major epidemiological studies (e.g., Breslau et al., 1998; Kessler et al., 1995) have used retrospective reports to establish symptom chronology, it is obviously preferable to have longitudinal data to track symptom onset and offset. Also note that the NVVRS (Kulka et al., 1990) and HVVP (Friedman et al., 1997) datasets yield incomplete information about trajectories because the SCID does not contain questions that would be needed to assess patterns of exacerbation and remission. In addition, the SCID questions are global. It would be preferable to study chronicity by using questions that are designed to more specifically determine the presence of symptoms and their chronology.

The use of correlational data, as well as the use of retrospective reports of symptom onset and offset, poses limitations for the inferences we will be able to draw from the proposed analyses. However, the difficulty and expense of conducting prospective longitudinal studies has led to the use of correlational data to study the etiology of PTSD (e.g., King et al., 1996, 1998) and to the use of retrospective reports of symptom onset and offset to study the chronology of PTSD (e.g., Breslau, Davis, Andreski, et al., 1997; Breslau, Davis, Peterson, et al., 1997; Kessler et al., 1995).

Another issue is the relatively small number of participants in some groups (women and AJA men), which reduced statistical power. Note that almost all of the women were White, so our findings may not generalize to women of other ethnic backgrounds. Nevertheless, these datasets are based on excellent sampling and assessment methods and provide a unique opportunity to simultaneously examine an ethnically diverse sample of veterans.

This study adds to a growing body of knowledge about the chronicity of PTSD. Although symptoms persist in some individuals, the fact that other individuals recover raises questions about individual differences in recovery. Most prior studies of risk factors for PTSD have failed to distinguish the question of who *gets* PTSD from the question of who *keeps* PTSD. Our subsequent work will build on the present findings to help us address the latter question. Understanding who is at risk for developing PTSD is obviously important from a prevention standpoint. But understanding who among these individuals may fail to recover could be even more important, given the substantial comorbidity associated with PTSD.

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